INVOLVEMENT OF MICROBIAL FLORA IN AETIOLOGY OF SURGICAL SITE INFECTIONS

CP-143

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Background

Surgical site infection (SSI) are common complications of surgical care and account for 14% to 16% of all nosocomial infections. They have a high impact on morbidity, mortality in surgical and intensive care units (ICU). In order to establish the prophylaxis protocols, we must know the antibiotic resistance profiles of the germs involved in SSI.

Objectives

1. Establishing the etiology of SSI in post-surgery patients.
2. Comparison of antibiotic resistance profile variation in relation to the suppuration and ward type (surgical or ICU).

Material and method

Study lot: 165 hospitalized patients from Clinical Emergency County Hospital of Craiova, Romania between 1.06-31.08.2014.

Biological samples: discharge, pus, drainage liquid from superficial and deep surgical wounds.

We performed classical bacteriological diagnosis and antimicrobial susceptibility testing by diffusimetric method (Clinical and Laboratory Standards Institute's guidelines 2014).

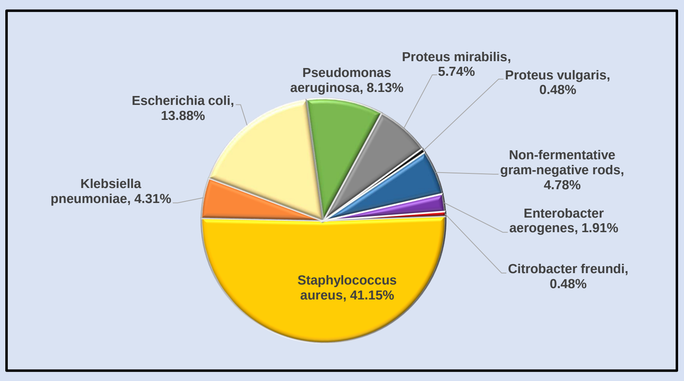
The results were processed using Whonet 5.6 software. Statistical analyses were performed using SPSS 20.0.

Class	Abv.	Antibiotic
β-lactams	AX	amoxycillin
β-lactams	AMP	ampicillin
β-lactams	CZO	cefazolin
β-lactams	FEP	cefepime
β-lactams	CPO	cefpirome
β-lactams	CRO	ceftriaxone
β-lactams	CXM	cefuroxime
β-lactams	OX	oxacillin
β-lactams	P	penicillin
β-lactams + inhibitors	AMC	amoxycillin-clavulanate
β-lactams + inhibitors	CES	cefopersone + sulbactam
β-lactams + inhibitors	TZP	piperacillin+ tazobactam
monobactams	ATM	aztreonams
carbapenems	ERT	ertapenem
carbapenems	IPM	imipenem
carbapenems	MEM	meropenem

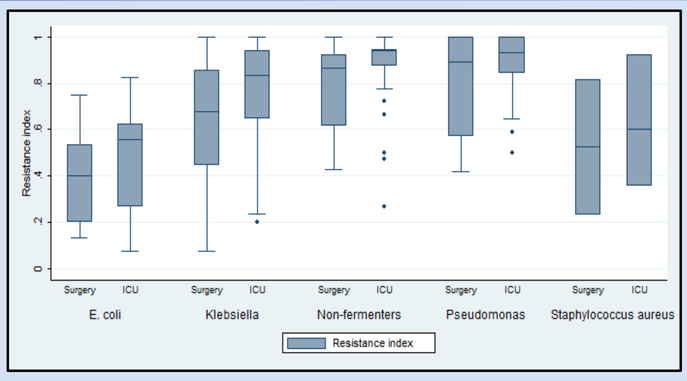
Class	Abv.	Antibiotic
aminoglycosides	AK	amikacin
aminoglycosides	GEN	gentamycin
aminoglycosides	TOB	tobramycin
macrolides	CLR	clarithromycin
macrolides	E	erytrhtomycin
quinolones	CIP	ciprofloxacine
quinolones	LEV	levofloxacine
tetracyclines	DO	doxycyclin
tetracyclines	TGC	tigecyclin
sulphamides	SXT	sulfametoxazole+ trimetoprim
oxazolidinones	LZD	linezolid
lincosamides	DA	clyndamycine
glycopeptides	TEC	teicoplanin
other	FOS	fosfomycin
other	RIF	rifampin
other	VAN	vancomycin

Antimicrobial susceptibility testing by diffusimetric method

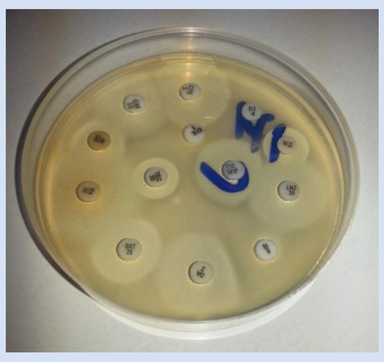
Results

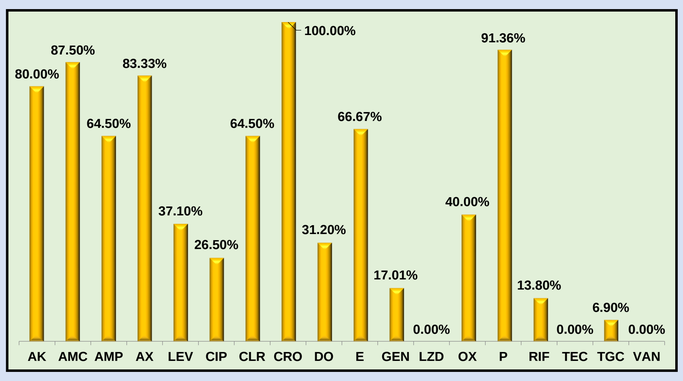


Bacterial species involved in surgical site infections

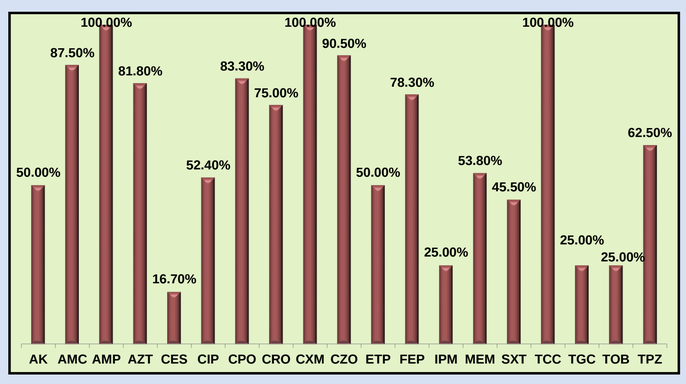


Variation of multiple antibiotic resistance index (MAR) by species and type of ward

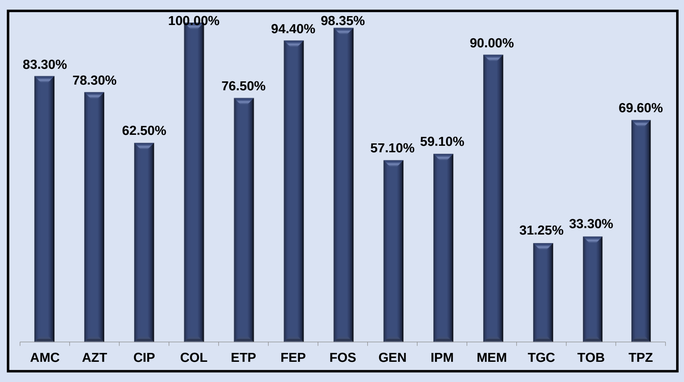




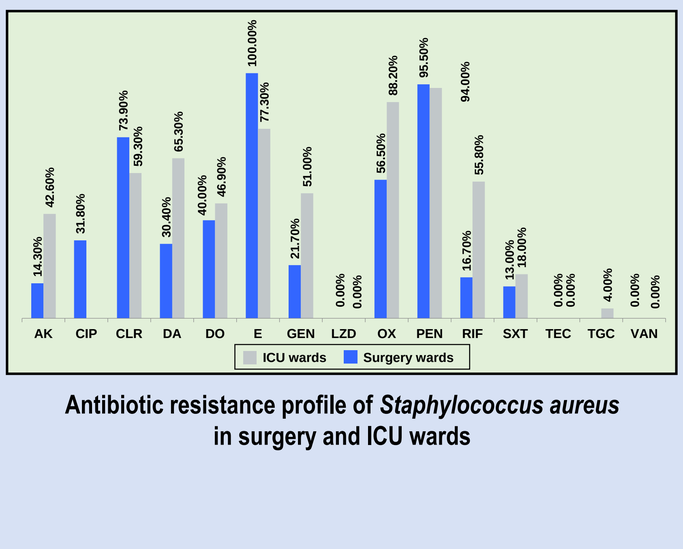
Antibiotic resistance profile of *Staphylococcus aureus*



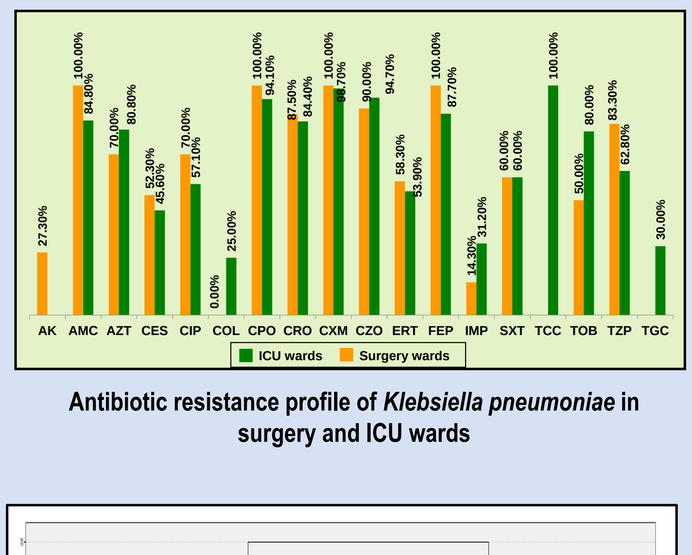
Antibiotic resistance profile of *Klebsiella pneumoniae*



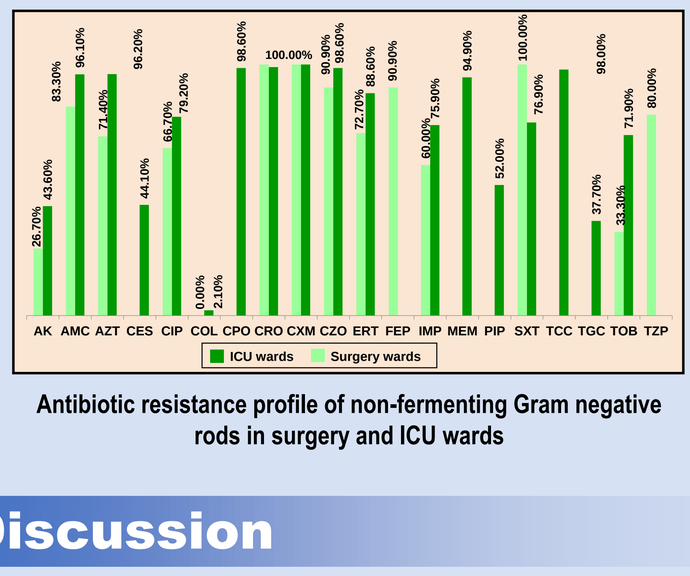
Antibiotic resistance profile of non-fermenting Gram negative rods



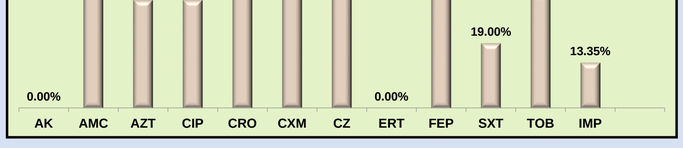
Antibiotic resistance profile of *Staphylococcus aureus* in surgery and ICU wards



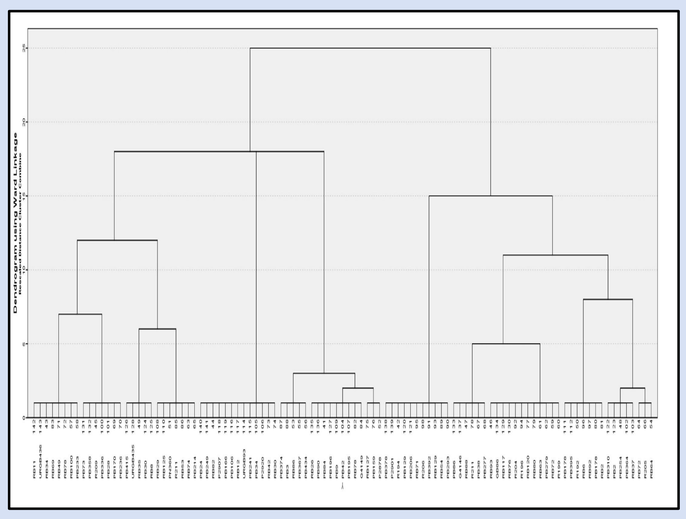
Antibiotic resistance profile of *Klebsiella pneumoniae* in surgery and ICU wards



Antibiotic resistance profile of non-fermenting Gram negative rods in surgery and ICU wards



Antibiotic resistance profile of *Escherichia coli*

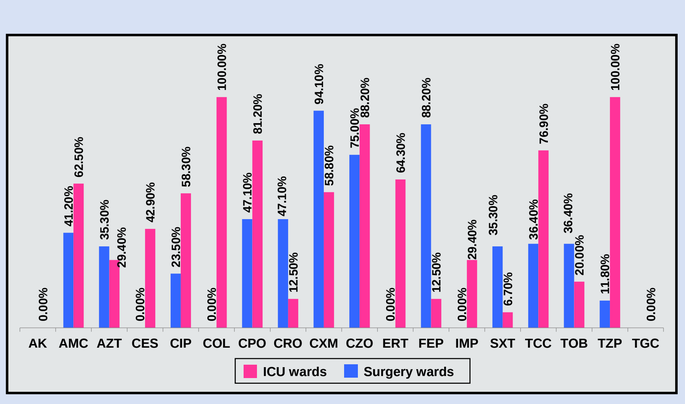


Hierarchical cluster analysis of resistance of *Escherichia coli* and *Klebsiella pneumoniae* strains (Ward's minimum variance method)

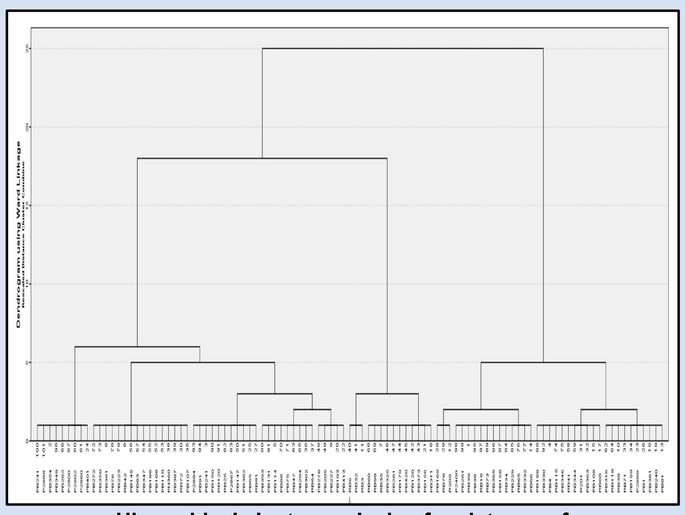
Discussion

The clinical hospital pharmacist play an important role in the antibiotic stewardship of SSI by monitoring infection rates, participating in the selection of antibiotics, and determining when to initiate, de-escalation and terminate antibiotic prophylactic administration. Clinical hospital pharmacist must ensure that the number and types of antimicrobial agents available are appropriate for the patient population served (wards, geographic area, disease type).

The drug sensitivity profile (diameters of inhibition areas) in the diffusimetric method can be used for phenotypic typing and epidemiological tracing of hospital strains.



Antibiotic resistance profile of *Escherichia coli* in surgery and ICU wards



Hierarchical cluster analysis of resistance of *Staphylococcus aureus* strains (Ward's minimum variance method)

Conclusions

The study identified the antimicrobial resistance profiles of main bacterial agents involved in SSI.

The germs isolated from ICU wards have a higher resistance to certain antimicrobials, especially to the carbapenems, compared with those from surgical wards. The use of these agents should be restricted in ICU wards to prevent the development of the resistance.

The clinical hospital pharmacist must work closely with the the surgeons, epidemiologists, infectionists and microbiologists for elaboration of clinical infection prevention guidelines.